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Knowledge, Attitude, Practice, Health Seeming Behaviour Towards Anemia Among Educated Menstruating Women (Aged 14-50 Years)

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Abstract
Background
Anaemia is a health concern in menstruating women, especially adolescent girls and pregnant women. The prevalence is higher in developing countries like India, mainly Iron deficiency anaemia which is the most common type in India due to factors like malnutrition, lack of awareness, lower socioeconomic status and less education. A research was carried out to assess the knowledge, attitude, practice and health-seeming behaviour of internet using educated menstruating women towards anaemia. The objective of the study was to enumerate knowledge, attitude, practice and health seeming behaviour towards anaemia.
Materials and methods
An observational cross sectional study was conducted via social media due to pandemic. The study population comprises 387 internet using educated menstruating women (aged 14-50 years) who took the survey via social media. A pretested semi-structured questionnaire created through Google forms was used to collect data for study. It was self-administered questionnaire. The study period was between September 1, 2020 and October 1,2020.
Results
Out of 387 participants, 31.79% have Fair knowledge, 29.97% show Fair attitude, 56.85% have Fair practice and 35.4% have Fair health seeming behaviour towards anaemia.
Conclusion
The results of the study indicated that the participants had Fair knowledge, Fair attitude, fair practice and fair health-seeming behaviour towards anaemia. Educating women about anaemia would help preventing the conditions and help gain knowledge and develop good attitude towards anaemia.

Keywords
Anaemia, Health seeming behaviour, Educated Menstruating women, Modified Kuppuswamy scale

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I. Introduction

Anaemia is a condition in which the number of red blood corpuscles (RBC) or their oxygen-carrying capacity is not sufficient to meet the physiological needs of a person. Decreased RBC count could be due to insufficient production or augmented destruction or loss. The production of RBC requires adequate nutrients intake of vitamins (B6, B9, B12 and A) and minerals (Iron and Copper). Deficiency of these nutrients leads to decreased production of RBC and nutritional anaemia; while excess destruction due to blood loss, infections, etc causes haemolytic anaemia. A study by Kassebaum et al, conducted from 1990-2010 in 187 countries reported that Global anaemia prevalence in 2010 was 32.9%, causing 68.36 million years lived with disability. As per World Health organization (WHO) a higher proportion of women in 15-59 years age group were anaemic than men[1]. Among all anemias, Iron Deficiency Anemia (IDA) is most prevalent anemia worldwide. In developing countries, the prevalence rate is higher (44%) as compared to developed countries (12%).The World Health Organization estimates that 58% of pregnant women in developing countries are anaemic. Women have additional iron requirements from puberty to menopause. This arises from the physiological needs of menstruation, pregnancy and to some extent in lactation. In adolescent girls, iron loss (basal plus menstrual loss)

is 1.4 mg/day. Requirement for pregnant women is about 1000 mg during second and third trimesters. In most developing countries, the high iron demands of these groups are not met mainly because of poor availability of iron in tropical diets, thus leading to iron deficiency anemia. Anemia not only has influence on physical development but has an effect on mental development. Iron is required in body for oxygen transport by haemoglobin. It is an important part of enzymes in cellular oxidation. It also aids in phagocytosis and immune functions. Therefore, iron deficiency in body leads to impaired oxygen transport and oxygen delivery to tissues, defects in metabolism. Immunity is reduced, so person is susceptible to attack of infectious agents. Iron deficiency reduces learning capacity and affects behaviour and neurophysiological parameters. The magnitude of anemia as health problem is massive and can be managed with increasing awareness, promotion of correct attitudes and practices[2]. One of the most important reasons of nutritional problem is lack of nutritional knowledge and consequently improper practice in this issue which can cause complications such as malnutrition and noncontagious diseases.[3] Difficulties related to the building of iron stores during pregnancy provide a strong rationale for health education regarding the iron status of women before pregnancy and for establishing good levels of stored iron before pregnancy. KAP assessment is suitable to evaluate the efficacy of intervention programs. Moreover, it can assess a target group's current knowledge, attitude, and practice regarding a specific topic to detect their needs, problems and possible barriers before developing and executing the intervention study[4] . Even though anemia having been identified as global public health problem for several years, no rapid progress has been observed and the prevalence of the disease is still high [5] . With this background, the study aims at assessing the knowledge, attitude, practice and health seeming behaviour towards anemia among educated women.

II. Materials And Methods

The study design is cross sectional study. The study participants are internet using educated menstruating women (aged 14 to 50 years). An online survey was conducted among internet users via social media. The study period was September 1-October 1 2020. A pretested semi-structured questionnaire was used to collect data for study. It was self-administered questionnaire. The questionnaire was constituted into 5 parts

Part 1- Socio demographic characteristics
Part 2- Health seeming behaviour towards anaemia
Part 3- Knowledge about Anaemia
Part 4- Attitude towards Anaemia
Part 5- Practice towards Anaemia

The questionnaire consists of 21 questions regarding knowledge, attitude and practice of among educated menstruating women. It is a mixture of both open ended and close ended questions. The questions were formulated to test the knowledge, attitude and practice of anaemia.

The KAP assessment and health seeming behaviour was assessed similar to the previous studies by Singh M et al.2019, Angadi N et al.2016 and Shojaeizadeh D.2001.[7,8,11] The assessment was also done based on 'Guidelines for Conducting a KAP Study' by K. Kaliyaperumal 2004. The knowledge was assessed by giving +1 for correct answer, 0 for unanswered questions and -1 for wrong answers. The resulting scores ranged from 0 to 36 and classified into Very poor(0-6), Poor(7 to 12), Fair(13 to 18), Satisfactory(19 to 24), Good(25 to 30) and Very good(31 to 36). In attitude section, -2, -1, 0, +1, +2 were given for strongly disagree, Disagree, Neutral, Agree and Strongly disagree respectively. The resulting scores ranged from -4 to 12 and divided into Very poor(-4 to -2), Poor(-1 to 1), Fair(2 to 4), Satisfactory(5 to 7), Good(8 to 10) and Very good(11 to 12). For practice, -2,-1,0,1,2 were given for Never, Rarely, Sometimes, Often and Always respectively. The obtained scores ranged from -8 to 16 and classified into Poor (-8 to 0), Fair(1 to 8) and Good(9 to 16).

VARIABLES : Sociodemographic characteristics like age, education, occupation were assessed. Socioeconomic status was calculated using modified kuppuswamy scale[6].

STATISTICS: The data collected were evaluated using Microsoft Excel Version 2.41.1 and SPSS Version 23.0. (Chicago, USA). Socioeconomic status was calculated using modified Kuppuswamy scale.

III. Results

SOCIODEMOGRAPHIC DATA: Table 1 describes the sociodemographic data of participants. Out of the 387 participants 49% belong to the age group of 18-20. 60% are professionals. 56% belong to socioeconomic status of 2(Upper middle class). 81% practice Hinduism. 90% are unmarried. 79% are urban residents. 87% belong to Nuclear family. 81% belong to Nuclear family and urban residence, 68% belong to joint family and urban residence.

HEALTH SEEMING BEHAVIOR TOWARDS ANEMIA: Graph 1 represents the health seeming behavior towards anemia. 67.7% follow mixed diet, 74% intake meals 3 times a day, 71% intake vegetables daily, 78% snack in between meals, 42% eat junk food weekly, 31% eat fruits daily, 89% don't take iron supplements, 85% don't take vitamin supplements,82% haven't taken deworming tablets in last 6 months, 58% take rest/sleep for 7-8 hours per day, 47% suffer from stress/worry, 41% of the participants have tiredness as most common symptom , 56% never test for anemia, 19% are diagnosed with anemia, 79% have taken Iron and folic acid supplements as treatment for anemia, 24% suffer from other menstrual disorders among which Irregular periods is the most common type of menstrual disorder(37%) and 50% have undergone/currently undergoing treatment for menstrual disorder.

KNOWLEDGE OF ANEMIA: Graph 2 depicts the knowledge of anemia among the participants. 92% are aware of the term anemia. 50.4% think that anemia is a disease. 35% have answered that the term anemia describes Low hemoglobin level in blood. 48% have answered that tiredness is the most common symptom of anemia. 83% think that decrease in iron and folic acid intake in food is the most common reason for anemia. 64% think that decrease in working capacity is the most common effect of being anemic. 86% think that the most effective prevention of anemia is by increasing iron intake. 81% consider iron and folic acid supplements are the most effective treatment for anemia. 65% have answered correctly that the normal hemoglobin level in women is 12-15 g/dl.

ATTITUDE TOWARDS ANEMIA: Graph 3 describes the attitude towards anemia among participants. 33% agree that they feel like trimming their nails regularly.33% disagree that they feel like walking barefoot outside the house. 56% strongly agree that they feel like washing fruits and vegetables before consuming them. 52% strongly agree that they feel like washing their hands before consuming food. 50% strongly agree that they feel like washing their hands with soap after defecation. 35% are Neutral on asking whether they feel like wearing slippers regularly.

PRACTICE TOWARDS ANEMIA: Graph 4 shows the practice towards anemia among the participants. 40% agree that they trim their nails regularly. 32% strongly disagree that they walk barefoot outside the house. 87% always wash fruits and vegetables before consuming them. 59% always wash their hands before consuming food. 76% always wash their hands with soap after defecation. 43% agree that they wear slippers regularly.

IV. Discussion

The study was conducted in 2020 with the intention of assessing knowledge, attitude, practice and health seeming behaviour towards anaemia. The participants have fair knowledge, fair attitude, fair practice and fair health seeming behaviour towards anaemia. The obtain result is higher than the study by Angadi N et al.2016, Chaluvaraj et al. 2018[7,8,4],in which the participants exhibited Poor knowledge, poor attitude and poor practice towards anemia. The result is also higher than the study by Singh et al. 2019[11] in which the participants have good knowledge, poor attitude and practice. 49% belong to age group of 18-20. 60% are professionals. 56% belong to socioeconomic status of 2(Upper middle class) which is higher than the study by Prasad Upadrasta et al. 2019[1] . 81% practice Hinduism. 90% are unmarried. 79% are Urban residents. 87% belong to Nuclear family which is higher than the study by Saadia Shahzad et al. 2017[9] . The sociodemographic data bears significance in the knowledge due to higher education, urban residency, individual care due to Nuclear family which enables them to have good attitude and practice. The age of the participants and marital status may be a reason for having moderate knowledge, attitude and practice due to reasons like less awareness, less exposure and experience. Socioeconomic status has less significant role in their practice as majority belong to upper middle class.

67.7% follow mixed diet which is lower than the previous study by Patil et al. 2018[10]. 74% intake meals 3 times a day, 71% intake vegetables daily, 78% snack in between meals, 42% eat junk food weekly, 31% eat fruits daily. The eating habits of the participants overall is healthy. 89% don't take iron supplements, 85% don't take vitamin supplements, 82% haven't taken deworming tablets in last 6 months. The result is higher than the study by Singh et al. 2019[11] but lower than the study by Angadi et al. 2016[8]. 58% take rest/sleep for 7-8 hours per day, 47% suffer from stress/worry, 41% of the participants have tiredness as most common

symptom , 56% never test for anemia, 79% have taken Iron and folic acid supplements as treatment for anemia, 24% suffer from other menstrual disorders among which Irregular periods is the most common type of menstrual disorder(37%) and 50% have undergone/currently undergoing treatment for menstrual disorder. 19% of the participants have been diagnosed with anemia. This is lower than the anemic participants in previous study by Prasad Upadrasta et al. 2019[1]. The factors: Not taking iron/folic acid/vitamin/Deworming tablets, menstrual disorders, anemia not being treated may be the reasons for moderate health seeming behaviour of the participants.

50.4% think anemia is disease, which is lower than the previous study by Chaluvaraj et al. 2018[4]. 35% have answered that anemia is low hemoglobin in blood. 48% have answered that tiredness is the most common symptom of anemia. 83% think that decrease in iron and folic acid intake in food is the most common reason for anemia. 64% think that decrease in working capacity is the most common effect of being anemic. 86% think that the most effective prevention of anemia is by increasing iron intake. 81% consider iron and folic acid supplements are the most effective treatment for anemia. 65% have answered correctly that the normal hemoglobin level in women is 12-15 g/dl. The results are higher than the study conducted by Angadi et al. 2016 and Singh et al. 2019[8,11].

33% agree that they feel like trimming their nails regularly.33% disagree that they feel like walking barefoot outside the house. 56% strongly agree that they feel like washing fruits and vegetables before consuming them. 52% strongly agree that they feel like washing their hands before consuming food. 50% strongly agree that they feel like washing their hands with soap after defecation. 35% are Neutral on asking whether they feel like wearing slippers regularly. The attitude towards handwashing practices, washing vegetables and fruits are good, whereas the attitude towards footwear and trimming nails are moderate, thus they may have significant contribution to fair attitude towards anemia.

87% always wash fruits and vegetables before consuming them. 59% always wash their hands before consuming food. 43% agree that they wear slippers regularly. The aforementioned practices are higher than the study by Singh et al. 2019[11]. The other practices are lower than the previous studies. Thus these practices may contribute to the fair practices towards anemia. The mean knowledge score was 16±0.289, the mean attitude score was 6±0.8, the mean practice score was 7±0.99 and the mean health seeming behaviour score was 10±0.6. Table 2 represents the overall of assessment of knowledge, attitude, practice and health seeming behaviour of the participants involved in this study.

V. Conclusion

The participants exhibit Fair knowledge, Fair attitude, fair practice and fair health seeming behavior towards anemia. The factors like age, marital status, less frequent screening for anemia, not taking supplements, not treating menstrual disorders, moderate footwear and trimming nails practices may contribute to the result. The awareness of anemia can be improved by organizing health campaigns and promote screening of anemia among women of reproductive age.

WHAT WAS KNOWN BEFORE STUDY	**WHAT INFO THIS STUDY ADDS TO EXISTING KNOWLEDGE**
1. The participants exhibited good knowledge but inadequate attitude and practice towards anemia[8,11] 2. The participants exhibited poor knowledge, attitude and practice towards anemia[4,7]	The participants exhibit Fair knowledge, Fair attitude, fair practice and fair health seeming behaviour towards anemia

LIMITATIONS OF THE STUDY: Sample size could have been larger. Due to pandemic the feasibility of in person interview was limited. More parameters on assessing knowledge, attitude and practice could have been asked. More parameters on assessing the KAP towards anaemia could have been included. Barriers and facilitators for KAP anaemia could have been asked.

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TABLES AND FIGURES

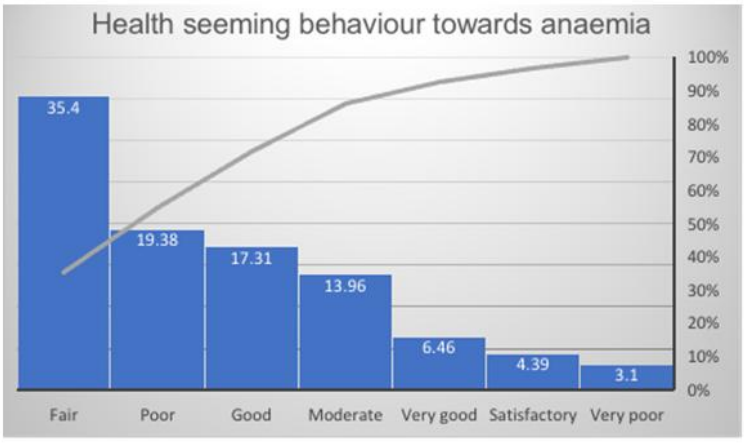
TABLE 1- SOCIODEMOGRAPHIC DATA OF PARTICIPANTS

AGE GROUP	***NO. OF PARTICIPANTS***	***% OF PARTICIPANTS***
14-17	20	5.17
18-20	191	49.35
21-23	113	29.2
24-26	35	9.04
27-29	6	1.55
30-40	8	2.06
41-50	14	3.62
SE CLASS	***NO. OF PARTICIPANTS***	***%OF PARTICIPANTS***
1	41	11
2	216	56
3	48	12
4	44	11
Nil	38	10
EDUCATION	***NO. OF PARTICIPANTS***	***%OF PARTICIPANTS***
Secondary	4	1
Higher secondary	11	3
Technical education	7	2
Undergraduate	95	24
Post graduate	27	7
Doctorate	10	3
Professional	232	60
RELIGION THAT YOU PRACTICE	***NO. OF PARTICIPANTS***	***%OF PARTICIPANTS***
Hinduism	314	81
Christianity	36	9.3
Islam	13	3.4
Atheism	5	1.3
Prefer not to say	19	5
MARITAL STATUS	***NO. OF PARTICIPANTS***	***% OF PARTICIPANTS***
Unmarried	350	90
Married	31	8
Prefer not to say	6	2
TYPE OF RESIDENCE	***NO. OF PARTICIPANTS***	***% OF PARTICIPANTS***

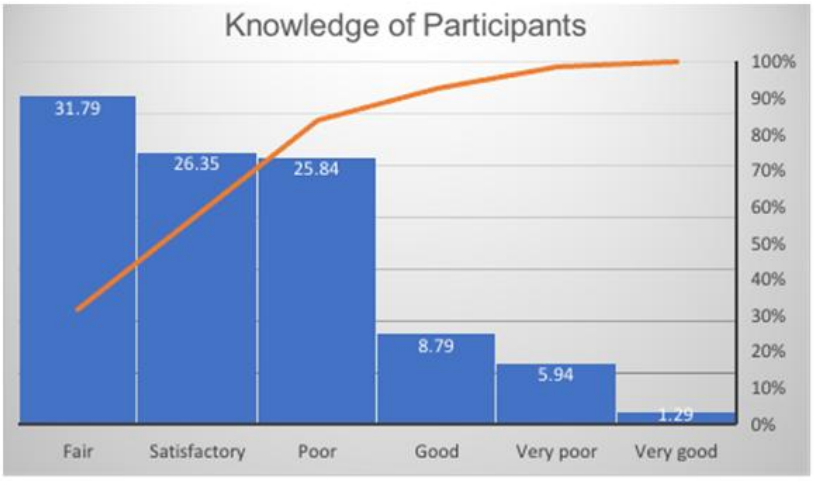
Rural	80	21
Urban	307	79
TYPE OF FAMILY	***NO. OF PARTICIPANTS***	***% OF PARTICIPANTS***
Nuclear family	337	87
Joint family	50	13

TABLE 2- ASSESSMENT OF KNOWLEDGE, ATTITUDE, PRACTICE AND HEALTH SEEMING BEHAVIOUR TOWARDS ANEMIA

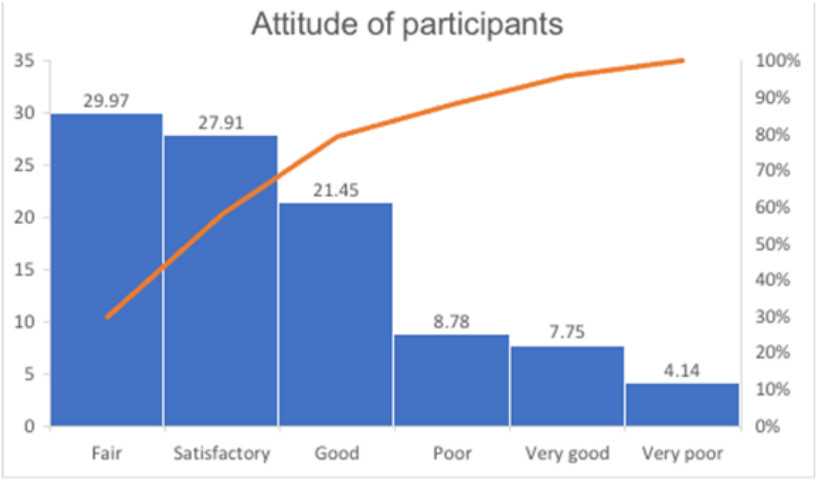
HEALTH SEEMING BEHAVIOUR	SCORES (RANGE / FROM - TO)	*% OF PARTICIPANTS OBTAINED SCORES IN BETWEEN THE RANGE*
Very poor	-13 to -6	3.1
Poor	-5 to 2	19.38
Fair	3 to 10	35.4
Moderate	11 to 18	13.96
Satisfactory	19 to 26	4.39
Good	27 to 34	17.31
Very good	35 to 42	6.46
KNOWLEDGE		
Very poor	0 to 6	5.94
Poor	7 to 12	25.84
Fair	13 to 18	31.79
Satisfactory	19 to 24	26.35
Good	25 to 30	8.79
Very good	31 to 36	1.29
ATTITUDE		
Very poor	-4 to -2	4.14
Poor	-1 to 1	8.78
Fair	2 to 4	29.97
Satisfactory	5 to 7	27.91
Good	8 to 10	21.45
Very good	11 to 12	7.75
PRACTICE		
Poor	-8 to 0	3.62
Fair	1 to 8	56.85
Good	9 to 16	39.53



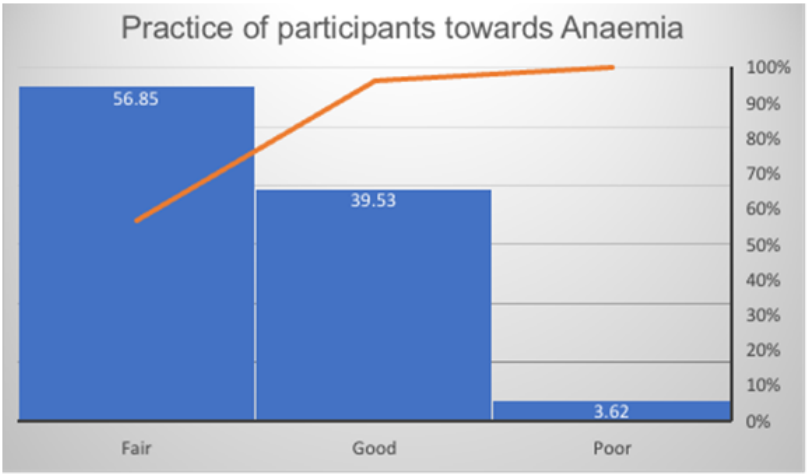
GRAPH-1- HEALTH SEEMING BEHAVIOR TOWARDS ANEMIA OF PARTICIPANTS



GRAPH 2- KNOWLEDGE OF PARTICIPANTS TOWARDS ANEMIA



GRAPH 3- ATTITUDE OF PARTICIPANTS TOWARDS ANAEMIA



GRAPH 4- PRACTICE OF PARTICIPANTS TOWARDS ANEMIA